

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 29

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALEXANDER P. GOUMENIOUK and
B.G. RICHARDS

Appeal No. 96-1355
Application 07/896,209¹

ON BRIEF

Before WINTERS, WILLIAM F. SMITH, and LORIN, Administrative Patent Judges.

WINTERS, Administrative Patent Judge.

¹ Application for patent filed June 10, 1992. According to appellants, this application is a continuation-in-part of Application 07/727,582, filed July 9, 1991, now abandoned.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 2 through 8, 10 through 13, 16, 17, 21 through 24, 26 through 29 and 85 through 88, all the claims in the application.

Independent claim 85 is illustrative of the subject matter on appeal and reads as follows:

85. A method of ascertaining the presence of granulocytes in a sample of whole blood which comprises the steps of:

providing an assay medium which includes a diagnostic system consisting essentially of a peroxide and an oxidation-sensitive indicator which is capable of undergoing a myeloperoxidase-catalyzed color change reaction with said peroxide;

withdrawing the blood sample from a subject;

disrupting red blood cells in the sample by lysis and removing the debris of the disrupted red blood cells by trapping the granulocytes on a membrane and passing said debris through the membrane to isolate said granulocytes and to remove from the blood sample components in the sample that might interfere with a determination of the granulocytes in the sample;

lysing the isolated granulocytes in the blood sample on said membrane to release intracellular myeloperoxidase present in said granulocytes;

bringing the peroxide and indicator in the assay medium into contact with the released myeloperoxidase in that area of the membrane where the myeloperoxidase is released to catalyze color developing reactions between the peroxide and the oxidation-sensitive indicator; and

employing a change in the color of the indicator as evidence of the presence of granulocytes in the blood sample.

The references relied upon by the examiner are:

Free et al. (Free)	3,087,794	Apr. 30, 1963
Fetter et al. (Fetter)	3,552,928	Jan. 5, 1971
Meiattini (European Patent Application)	418,486	Mar. 27, 1991

Claims 2 through 8, 10 through 13, 16, 17, 21 through 24, 26 through 29 and 85 through 88 stand rejected under 35 U.S.C. § 103 as unpatentable over Free and Meiattini in view of Fetter. We reverse.

The claims on appeal are directed to a method of detecting granulocytes in a sample of whole blood. In its broadest aspect, the method involves treating the sample to lyse red blood cells; separating any granulocytes in the sample from the red cell debris; lysing the granulocytes to release intracellular myeloperoxidase; and incubating the myeloperoxidase with an oxygen-sensitive color developing indicator system. Claim 85, from which all the other claims depend, recites:

. . . disrupting red blood cells in the sample by lysis and removing the debris of the disrupted red blood cells by trapping the granulocytes on a membrane and passing said debris through the membrane to isolate said granulocytes and to remove from the blood sample components in the sample that might interfere with a determination of the granulocytes in the sample;

lysing the isolated granulocytes in the blood sample on said membrane to release intracellular myeloperoxidase . . .

bringing the peroxide and indicator in the assay medium into contact with the released myeloperoxidase in that area of the membrane where the myeloperoxidase is released . . .

Free is directed to methods and indicator compositions for “detecting erythrocytes by their hemin content when present in a body fluid also containing leukocytes with their peroxidase content” and for “detecting leukocytes by their peroxidase content when present in a body fluid also containing erythrocytes with their hemin content.” The reference teaches that “various catalytically active substances (substances having peroxidative activity) can be differentiated under a given set of conditions.” That is, the peroxidase activity of the leukocytes can be distinguished from the peroxidative activity of hemin in the erythrocytes, and vice versa, without separation, by “careful adjustment of peroxide concentration, pH and indicator concentration and choice of indicator.” See column 1, lines 52-69, and column 3, lines 1-10.

Meiattini discloses “a reagent suitable both for the detection and for the quantitative determination of leukocytes in biological samples through the measurement of [myeloperoxidase] activity . . . having such a specificity that hemoglobin does not bring about interferences at all even in the presence of several erythrocytes . . .” See page 3.

Fetter separates whole blood into red cell and colorless fractions so that chromogenic indicators can be used to detect analytes in the colorless fraction without interference from the intensely colored red cells.

The examiner believes that “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to determine granulocytes in an assay process taught by Free and Meiattini with the colorless fraction obtained by the Fetters process.” The reason, suggestion or motivation to combine the references² in this manner according to the examiner is “to get more accurate results for leukocytes free from the interferences of heme.” See the Answer, page 6.

Appellants argue that, unlike any of the prior art methods, “[t]he claimed method features a step for *removing interfering blood cell components from the sample* before the myeloperoxidase is released from the granulocytes in that sample and contacted with the oxygen-sensitive indicator . . . [a]nother important -- and patentable -- feature of the claimed method . . . is that of *trapping the granulocytes on a membrane* in order to isolate those cells from other, potentially interfering constituents of the blood sample” and “[a] related, and also patentably distinguishing, limitation of the claims on appeal requires that the assay medium be contacted with the intracellular myeloperoxidase on the membrane *in that location where the granulocytes are trapped.*” See the Brief, pages 3 and 4.

² As stated in Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629 (Fed. Cir. 1996) (citation omitted), “It is well-established that before a conclusion of obviousness may be made based on a combination of references, there must have been a reason, suggestion or motivation to lead an inventor to combine those references.”

The examiner does not specifically address the above quoted claim limitations or appellants' argument predicated on those limitations. According to the examiner, "[t]he claim language is excessively broad and would read on an ordinary filter paper;" "Free teaches the skilled artisan that erythrocytes and leukocytes both contain myeloperoxidase, thus the skilled artisan wanting to determine the granulocyte content alone would separate out all the red blood components to prevent erroneous results;" and "the references teach the overall assay scheme and disclose methods of separating the various components of blood . . . [t]hus, the skilled artisan measuring different components of blood knows how blood is separated into components and also knows the assay procedure used in the art for determining granulocyte content." See the Answer, pages 8 through 10.³

In our judgment, the combined disclosures of the cited references are clearly insufficient to support a conclusion of obviousness of claims containing the limitations discussed above. 35 U.S.C. § 103 requires that obviousness be determined based on the claimed subject matter as a whole. Where, as here, the determination of obviousness was based on less than the entire claimed subject matter, the examiner's conclusion of

³ With respect to the Free reference, the examiner is factually incorrect. As pointed out in appellants' Reply Brief, Free actually teaches that the hemoglobin in erythrocytes exhibits a pseudo-peroxidase, or "peroxidative" activity. There is no mention of myeloperoxidase in the reference.

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obviousness is legally unsound and cannot stand. On this record, we reverse the examiner's rejection under 35 U.S.C. § 103.

The decision of the examiner is reversed.

REVERSED

Sherman D. Winters
Administrative Patent Judge

William F. Smith
Administrative Patent Judge

Hubert C. Lorin
Administrative Patent Judge

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